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11. (Amended) A method to estimate the volume fraction of asphaltene aggregates,  $\phi_{agg}$ , in incompatible petroleum oil and/or refinery process stream mixtures comprising determining difference between  $I_L$ , the low-q plateau intensity corresponding to the asphaltene particles, and  $I_{HS}$ , the intensity for perfect hard spheres in the absence of aggregation, wherein  $I_L$  and  $I_{HS}$  are determined at different volume fractions of mixing,  $\phi_m$ .

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